



Quick Silver System Games

**AWESOME RAT
AWESOME LOOP
HI TENSION**

**Installation / Owner's
Manual**

SEGA ENTERPRISES, INC.

Manual Part No. X1501

TM



Games Designed by Quick Silver Development Co.

NOTE: This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

WARNING

The following servicing instructions are for use by **QUALIFIED PERSONNEL ONLY**. To avoid personal injury or damage to the equipment, **DO NOT** perform any servicing other than what is specified in this manual.

IMPORTANT

**PLEASE READ THIS MANUAL CAREFULLY
PRIOR TO SET-UP, INSTALLATION, OR
USE OF THIS PRODUCT FOR BEST
RESULTS**

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INTRODUCTION

MANUAL PURPOSE

The purpose of this manual is to assist you (the professional service technician) in the installation, operation, and servicing of this product. This manual contains all the necessary information you will need to become properly familiar with this machine, and it was designed to be self-explanatory, easy to use and act as a reference guide.

PRODUCT STATEMENT

SEGA ENTERPRISES, Inc. and Quick Silver Development Company, who provided the research and development on this machine know that products can only reach their maximum potential and gain the resultant customer satisfaction by being reliable and trouble free.

Therefore, extra steps and precautionary measures have been taken in the research and development, the quality control, and testing. Only the highest quality materials and parts are used.

BASIC DESCRIPTION OF GAME

This amusement machine is a unique solid-state mechanical ball-activated game. Its generic machine cabinet allows it to be easily converted for a variety of ball-activated games. They are all non-violent, skill-oriented games that appeal to all ages and gender. The playing concepts are all simple and easily understood. Coins or tokens are inserted which will automatically start the unit and deliver a ball to the playing surface. The player then controls (moves) the ball using hand and eye coordination, via a joystick connected to the game board. All variations (playfields) work on the same principle. Tickets are awarded at the end of a game if the player achieves certain predetermined objectives.

GENERAL INFORMATION

SPECIAL FEATURES

This product highlights the following features:

- Various levels of skill and play (new challenge concepts)
- A full view, fishbowl display action
- Large eye catching illuminated graphics
- Modular component design
- Error detection circuitry
- Error display modes
- Ticket dispenser option
- Fully Metered

GAME PLAY INSTRUCTIONS

Coins/tokens are inserted into the coin mechanism which is attached to an electro-mechanical Coin Verifier. Once the coin has been verified and accepted as legal tender it then trips a "Coin-In" switch which activates the following:

- Coin-In/Token Meter
- Turns on the Ball Pickup unit which puts a ball in play
- Turns on various Sound modes
- Displays various game information pertinent to the play of the game

The game play varies depending upon the model. All games have a play objective with a reward system for obtaining objective.

AWARD DETERMINATION

Each game has a defined factory pre-set Award Schedule which is controlled by the microprocessor. The Operator can change the Award schedule using the keypad on the Controller PCB, and by changing the information on the graphic artwork.

SPECIFICATIONS

OVERALL MACHINE DIMENSIONS / WEIGHT

Unboxed Machine Weight:	175 pounds
Unboxed Overall Dimensions:	24.75 x 31.50 x 59 inches

ELECTRICAL SPECIFICATIONS

Line Voltage:	100 to 120VAC Single Phase
Line Frequency:	60 Hz

Power Consumption:

AMPS PER MACHINE

Main Ball Feed Drive Motor	.440
Power Supply (Single)	1.00
Single Ballast Top Sign	.625
Single Ballast Game Surface	.625

Total Worst Case Current Requirement:	2.7 AMPS
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Current Protection: Main and Individual fusing for each circuit.

Power Cord Receptacle:	UL Rated
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Power Supply:	Single +12VDC	UL Rated
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ENVIRONMENTAL

Temperature:	Operating:	32 F-95 F 0 C-35 C
	Storage:	32 F-150 F
Humidity (Relative):	Operating:	10%-90%
	Storage:	00%-95%
Non-Condensing:	Operating:	
	Storage:	

BASIC SET-UP PROCEDURES

I M P O R T A N T - Read this manual carefully prior to set-up and installation of this product for best results.

Every effort has been made to make this product operator / user friendly (easy to inspect and install) in a minimal amount of time and effort.

SHIPPING / MOVING THE UNIT

This product has been designed in a modular fashion and is shipped assembled. To assist in moving, the base frame of this machine was designed to be lifted by a hand cart from the rear.

Immediately after delivery and uncrating of the machine, a physical inspection should be conducted to ascertain any missing or damaged material.

Everything necessary to operate/play the machine will be included in the container sent. You need only to supply basic hand tools for set up/ installation.

Specifically you will need to:

- o Check the exterior of the machine to verify that the machine is free from scratches, chips, blemishes and any mechanical damage.
- o Check the glass for proper alignment, scratches and cracks.
- o Check the interior of the machine, making sure none of the components are disconnected or loose.
- o Open the Display Door and make sure the Printed Circuit Boards are securely connected to harnessing wires and that they are properly routed and secured.

BASIC SET UP PROCEDURES

- o This machine is designed for indoor installation. It should not be installed anywhere outdoors.
- o Avoid locations subjected to direct sunlight, high temperature, humidity, violent vibrations, dust, etc. Also avoid locations where dangerous objects or fire fighting apparatus are stored. Be sure not to block an emergency exit.
- o This machine was designed to be installed on a flat surface.
- o Prior to plugging the unit in, review AC Power Up procedures (See Page 9)
- o When the machine is switched on, it will test itself and any malfunctions will be indicated to the attendant on the "ERROR" code. See the "ERROR" code clause for explanation on Page 16.
- o Make sure the machine is well ventilated and meets environmental specifications.

Whenever connecting the solid-state module power cord to, or when disconnecting it from the outlet, be sure to turn the Power switch OFF.

BE SURE TO USE RATED FUSES

SET-UP ADJUSTMENTS

The following information is provided to aid in the installation of this machine and the necessary adjustments that it entails.

You must insure the machine is level from left to right, and tilted slightly forward. To do this, place a "carpenters level" on top of viewing glass, and adjust each of the four leg levelers as necessary.

Once the above has been performed, your machine is ready to operate. Please continue to read all information and instruction contained in this manual prior to applying power to the unit.

BASIC SET UP PROCEDURES

AC POWER UP PROCEDURES

DO NOT APPLY POWER TO THE UNIT UNTIL THE FOLLOWING HAS BEEN COMPLETED:

Upon receiving your unit, check to insure:

1. Assure that the Main Power Switch is in the "OFF" position.
2. The grounding terminal provided on the machine should be connected to "earth ground" without exception.
3. Pull each fuse out of the Main Power Panels to insure correct fuse rating. (See panel cover for proper rating).
4. Check to insure AC power cables to the Main Ball Feed Motor, lights and power supply are securely connected.
5. Plug unit in AC power outlet.
6. Turn Main Switch "ON" sequence.

AC POWER DOWN - EMERGENCY

In an emergency, simply pull the AC line plugs or throw the central cabinet Main Power Switch to the "OFF" position.

Note: This will turn power OFF to the entire unit.

NORMAL POWER DOWN PROCEDURES

Go to Power Panel on the Rear of the machine and turn the Main Power Switch "OFF".

NOTE:

**YOUR MACHINE HAS BEEN PRESET AT THE FACTORY FOR
RECOMMENDED GAME OPTIONS AND SETTINGS. TO CHANGE
THESE OPTIONS, REFER TO PG. 19 OF THIS MANUAL.**

MACHINE FUNCTIONS

MAIN SWITCH AND MAIN FUSE LOCATIONS

There is one Main Power ON/OFF Switch located on the back of the cabinet's upper right hand side, which can be operated from the outside of the cabinet. Note: The Main Power Switch turns all electricity ON or OFF to all areas of the machine. The Main Fuse is located internally on the cabinet floor, underneath the protective plastic cover.

AC BOARD AND FUSES

Access to the Printed Circuit Boards is through the Display Panel Door from the front of the machine. The Power Distribution PCB is labeled for easy identification of components.

FUSE RATINGS

Main Fuse	5.0 Amp	Note: Only use proper rated fuses for each component. Warranty for product is void if components are improperly fused.
Power Supply	1.0 Amp	
Ball Driver Motor	0.5 Amp	
Rope Lighting	1.0 Amp	

AWARD AND OTHER SWITCHES

Coin-In Switch: Located attached to the Coin/Token-In Verifier assembly. This switch activates the unit and puts it into a 'ready to play' mode when a coin/token is inserted.

Start Switch: Located on the right front portion on the unit. This switch activates the game.

Award Switches: Located as part of the Ball Pan Return unit and on the physical Playfield, depending on the kit installed. These switches trigger inputs to the microprocessor to keep track of the player's skill level. (points/laps ... etc.)

Ticket-Out Switch: Located on the Ticket Dispenser. Note: It is an optical switch.

Ball Feed Switch: Located as part of the Ball Feed unit. After the Ball Feed Motor is activated, this switch is an input switch to the microprocessor. When operated, the processor puts a signal to a power relay which controls and turns off the Ball Feed Motor.

COMPONENTS - REMOVAL AND INSTALLATION

This section on basic components contains: a description or general statement, how to remove and install, disassemble and reassemble instructions where appropriate, and adjustment information where necessary. Also it makes known what tools, if any, are required to service each component.

PLAYFIELD GLASS, UPPER & DISPLAY MARQUEE PANELS

This machine contains three (3) separate panels.

Tools required are a Flat Screw Driver and Allen Wrench

TO REMOVE the PLAYFIELD GLASS PANEL, proceed as follows:

- 1) Turn off the Main Power Switch and open the Front Door panel.
- 2) Remove the Front and Rear trim strips that secure the glass by loosening the two (2) wing nuts on the underside of each trim strip.
- 3) Remove the Joystick Knob by loosening the set screw on the knob using an Allen Wrench. Then, unscrew and remove the knob from the shaft.
- 4) Remove the Ball Return Pan by removing the two (2) thumb screws. Pull the front of the pan slightly down and out.
- 5) Use a flat screw driver to unbolt the Joystick Mounting Bracket (two upper 3" bolts). Lower the Joystick unit **intact**.
- 6) Slide the Playfield Glass out of its holding tracks.

TO REMOVE the DISPLAY MARQUEE PANEL, proceed as follows:

- 1) Turn off the Main Power Switch. Unlock and open the Display Marquee Panel.
- 2) Remove the metal trim strip, using a 3/8" wrench to unbolt the (2) nuts from the rear of unit while holding the trim strip to the unit.
- 3) By pulling the Panel upward, the Panel will come out of it's secured cabinet holding position.

COMPONENTS - REMOVAL AND INSTALLATION

TO REMOVE the UPPER MARQUEE PANEL, proceed as follows:

- 1) Turn off the Main Power Switch.
- 2) Using a T20 Tamper Proof Wrench, remove the (2) screws on the top and bottom trim strips. Pull the Upper Marquee Bracket and Graphic Panel UP out of the cabinet.

TO INSTALL the various PANELS, proceed as follows:

- 1) Clean glass/plastic panels if necessary.
- 2) Firmly hold glass/plastic panels with both hands, carefully insert panels into holding tracks/supports.
- 3) Follow the reverse directions of removal instructions.

TICKET DISPENSER

Removal & Installation Tools Required = 3/8" Wrench

TO REMOVE the TICKET DISPENSER, proceed as follows:

- 1) Turn off Main Power Switch.
- 2) Unlock the Front Door.
- 3) Disconnect the 4 pin wire Connector.
- 4) Remove any unused tickets from unit.
- 5) Hold the Ticket Dispenser with one hand to prevent the Dispenser from falling out. Remove the four (4) nuts which fasten the unit to the door.

TO INSTALL the TICKET DISPENSER, proceed as follows:

- 1) With both hands, place the unit in its mounting position and secure with given hardware.
- 2) Connect the 4 pin wire Connector.
- 3) Feed tickets into unit, then close and lock the Front Door.

COMPONENTS - REMOVAL AND INSTALLATION

JOYSTICK

This machine utilizes a special Joystick made up of a Controller Shaft Assembly, Controller Shaft Balance Assembly and Linkage, and Knob. (These parts are factory assembled and have no adjustments).

Removal and Installation Tools Required = Allen Wrench and a Flat Screw Driver

TO REMOVE the JOYSTICK, proceed as follows:

- 1) Turn off the Main Power Switch.
- 2) Unlock and open the Front Door.
- 3) Remove the Joystick Knob using an Allen Wrench to loosen the set screw.
- 4) The Playfield Glass and Playfield must be removed for access. (See Page 12).
- 5) Once the Playfield Glass has been removed, proceed to remove the (8) 6-32 screws that secure the Joystick Frame to the Cabinet Bracket.
- 6) Grasp the Joystick Assembly firmly, and remove the Joystick through the front Cabinet door area.

TO INSTALL the JOYSTICK, proceed as follows:

- 1) Clean and lubricate as necessary.
- 2) Follow removal instructions in reverse.

COMPONENTS - REMOVAL AND INSTALLATION

COIN-IN VERIFIER

Removal and Installation Tools Required = None

TO REMOVE the COIN-IN VERIFIER, proceed as follows:

- 1) Turn off the Main Power Switch and open Front Door.
- 2) Remove the unit by hand.

(Note: Coin reject solenoids are not used on this model.)

TO INSTALL the COIN-IN VERIFIER, proceed as follows:

- 1) Clean, repair and adjust as necessary.
- 2) Install the unit in the front door.

Note: The Coin Verifier unit may be removed independently, without taking out the entire assembly.

BALL PICK-UP RETURN SYSTEM

This system is what places a game ball onto the Playfield.

The Ball Pick-Up Return System is controlled by the microprocessor. When inputs to the microprocessor indicate a ball is to be dispensed, the microprocessor puts out a signal to a normally closed +5VDC/110VAC relay which turns on the ball pick-up/return system motor. The motor stays on until the Ball Feed Switch is activated, and then turns off 3 seconds later.

TO REMOVE system MECHANICAL PARTS, proceed as follows:

- 1) Turn off Main Power Switch.
- 2) Unlock and remove the back door.
- 3) Disconnect the 110V electrical plug connectors on the AC Board, and the ball feed switch wires.
- 4) Remove the four (4) 10-32 screws located on the back panel wall.

COMPONENTS - REMOVAL AND INSTALLATION

TO INSTALL system MECHANICAL PARTS, proceed as follows:

- 1) Clean and repair as necessary.
- 2) Follow the removal instructions in reverse order.

TO REMOVE system PLAYFIELD, proceed as follows:

- 1) Remove Playfield Glass (See Pg. 11 for Removal Instructions).
- 2) Securing the Playfield are 4 spring clips (2 on each side). Push the clips outward (toward the cabinet wall) on one side of the Playfield, and carefully lift upward and out.

TO INSTALL system PLAYFIELD, proceed as follows:

- 1) Clean and repair as necessary.
- 2) Follow the removal instructions in reverse order.

BALL RETURN PAN

The Ball Return Pan houses four (4) separate award switches and is constructed in such a manner to also feed balls to the Ball Pick-up Return system. If a switch needs to be replaced, it is easiest to remove the pan first before replacing a switch.

(Note: Three (3) screws secure it to the interior cabinet wall.)

BALL RETURN BOARD

The Ball Return Board funnels balls that fall off of the Playfield to the Ball Return Pan. This pan is divided into four (4) parts and is designed to direct balls into the proper award switch.

The board is easily removed by turning the two hold down wingnuts counter clockwise (located on the front edge of pan) and then pulling the pan forward and out.

MICROPROCESSOR

FUNCTIONS

The processor continuously monitors 9 different switch closure activities.

Switches Monitored:

- | | |
|-------------------|----------------------|
| 1. Award Switch 1 | 6. Coin-In Switch |
| 2. Award Switch 2 | 7. Ball Feed Switch |
| 3. Award Switch 3 | 8. Start Switch |
| 4. Award Switch 4 | 9. Ticket Out Switch |
| 5. Award Switch 5 | |

The microprocessor is designed to monitor and register input switch closures and pay out tickets during game play after award criteria is met.

Additionally, the processor is designed to give input signals to non-resetting, coin-in and ticket-out meters.

ERROR CODES - L.E.D. DISPLAY

The following ERROR CODES will appear on the large red L.E.D display under the following conditions:

The Large Red L.E.D. Display will show an error message of:

<u>Message</u>	<u>Cable Jack Pin # Location</u>	<u>Switch Location</u>
HLPO = Out of Tickets		Ticket Door Panel
HLP1 = Award Sw #1 Malfunction	J1-2	Ball Pan Rt. Rear
HLP2 = Award Sw #2 Malfunction	J1-3	Ball Pan Rt. Front
HLP3 = Award Sw #3 Malfunction	J1-4	Ball Pan Lt. Front
HLP4 = Award Sw #4 Malfunction	J1-5	Ball Pan Lt. Rear
HLP5 = Award Sw #5 Malfunction	J1-6	Frnt. Interior Wood Wall
HLP7 = Ball Out Sw/Motor Malfunction		Ball Pickup Assembly

NOTE 1: "OUT OF TICKETS" (HLPO) is displayed at the end of the current game run mode. When tickets are loaded, owed tickets will be dispensed, and the display will revert to normal.

NOTE 2: All switch malfunctions are only cleared by power-up initialization.

MICROPROCESSOR

MEMORY (Tickets)

In the event the Ticket Dispenser runs out of tickets while it is in a 'pay out' mode, the processor has a memory RAM. The machine will return to the condition/state where it left off, provided that the problem has been corrected (ie: refilled tickets). Also, The L.E.D. will display "HLPO" error code which indicates "Out of Tickets". The unit will now be back to normal.

POWER SUPPLY

A single Power Supply (3.4 amp) is used for driving the following +5VDC items:

- o The Processor
- o The L.C.D. Display
- o The Ball Feed Motor System Relay
- o The Input Signals into the Processor

The Power Supply Features are:

- o Low Noise and Ripple; EMI Filter
- o Over Voltage Protection
- o Accepts 115VAC or 230VAC Inputs
- o Short Circuit Protection
- o High Efficiency
- o UL Recognized / CSA Certified

Adjustments: The voltage may be adjusted using the voltage control pot (R-8-v. adj.) located on the printed circuit board on the front of the power supply. Due to varying input line voltages, the supply should be checked and set for +12VDC.

The Power Supply Specifications are:

Voltage AC Input	115/230 VAC (+/-) 10%
Output +12 VDC	3.4 amps
Line Regulation	+/- .05% for a 10% change
Load Regulation	+/- .05% for a 50% load change
Output Ripple	5.0 MV pk-pk max.
Temperature Rating	0 - 50 degrees Centigrade fully rated; de-rated linearly to 40% @ 70 C.

MICROPROCESSOR

SOUND

The sound system is composed of the following:

- o One 5-1/4" 8 ohm Speaker located in the Upper Marquee area.
- o Speaker Cable J-1 connects the speaker to the CPU Board J9.
- o An Audio Amplifier located on the CPU Board

The sound system is designed to generate the following Audio signals:

- o A Coin-In audio tone each time a coin is inserted.
- o A Ball Out audio tone for each ball dispensed on game board.
- o An Award Point audio tone for each award.
- o An Attraction audio tone.
- o A Game Theme audio tone when the game is in play.

ADJUSTMENTS

The Audio Volume Control adjustment is located on the CPU Board. Turn the control clockwise to increase, and counter clockwise to decrease sound volume. Note: The audio control is marked "POT 2" and is located on the bottom right hand side of the CPU Board.

TROUBLE SHOOTING CHECKLIST

If you experience no sound on coin-in, check the following:

- o Coin-In switch
- o Sound speaker wiring
- o Sound control adjustment

MICROPROCESSOR

OPTIONS - GAME BOARD OPTION SETTINGS

To set the options you must first power the game down, then power it up to make sure there are no credits pending on the game. Use the Main Power switch on the back of the unit.

CPU Key Pad Arrangement	PROGRAM	NEXT	ENTER	INCREASE	
	1	2	3	4	PROGRAMMING
	5	6	7	8	
	RUN	LAST	EXT	DECREASE	

1. In the RUN 5, the LCD display will read "COINS=____." This will represent the number of coins received by the game to date.
2. By pressing the NEXT 2 button twice, you will bring up "TICKETS" issued to date.

THIS IS THE EXTENT OF THE ACCOUNTING FUNCTIONS

3. To set the price per game press the PROGRAM 1 button once. It will display "SET COSTS/GAME". To set the values, you must press the NEXT 2 button. "1 GAME/COINS=01" will appear on the LCD.

Your game will be pre-set to the factory recommended settings. If you wish to change the settings, you must go through 12 GAME/COINS=___ settings and you will need to press the NEXT 2 button to go from "1 GAME/COIN=___" to "2 COIN/GAME=___" and so on until "12 COIN/GAME=___" is reached.

MICROPROCESSOR

OPTIONS - GAME OPTION SETTINGS

See below for an example of how to change the settings.

<u>EXAMPLE:</u>	1 COIN/GAME (\$.25)	2 COIN/GAME (\$.50)	3 COIN/DOLLAR (\$.50/game)
1 Game/Coin=	<u>01</u>	<u>02</u>	<u>00</u>
2 Game/Coin=	<u>02</u>	<u>04</u>	<u>00</u>
3 Game/Coin=	<u>03</u>	<u>06</u>	<u>04</u>
4 Game/Coin=	<u>04</u>	<u>08</u>	<u>06</u>
5 Game/Coin=	<u>05</u>	<u>10</u>	<u>08</u>
6 Game/Coin=	<u>06</u>	<u>12</u>	<u>08</u>
7 Game/Coin=	<u>07</u>	<u>14</u>	<u>10</u>
8 Game/Coin=	<u>08</u>	<u>16</u>	<u>12</u>
9 Game/Coin=	<u>09</u>	<u>18</u>	<u>12</u>
10 Game/Coin=	<u>10</u>	<u>20</u>	<u>14</u>
11 Game/Coin=	<u>11</u>	<u>22</u>	<u>16</u>
12 Game/Coin=	<u>12</u>	<u>24</u>	<u>16</u>

OPTIONS - AWARD VALUE SETTINGS (MAZE TYPE)

To set the Playfield Award values (number of Tickets to be dispensed per Playfield area), you must first power the game down and then up again to make sure there are no credits pending. Use the Main Power Switch the back of the unit.

CPU Key Pad Arrangement	PROGRAM NEXT ENTER INCREASE				PROGRAMMING
	1	2	3	4	
	5	6	7	8	
	RUN	LAST	EXIT	DECREASE	

To set the Awards for each game type you must first be in the "SET PARAMETERS" mode. To do this, press the PROGRAM 1 button four (4) times. It will display "SET PARAMETERS". To set the Award values, press the NEXT 2 button five (5) times. It will display "AWARD 1=XX". The INCREASE or DECREASE buttons (#4 & #5) along with the ENTER or EXIT buttons (#3 & #6) will enable you to set the Award amount. Press the NEXT button #2 and set the second Award amount, and etc. until all 5 Award amounts are set.

MICROPROCESSOR

OPTIONS - AWARD VALUE SETTINGS (MAZE TYPE)

To change the number value you must press the 'INCREASE 4" or the "DECREASE 5" buttons. To move the cursor you must press the "ENTER 3" or "EXIT 6" button which also serves as the cursor locator in this function.

4. Press the PROGRAM 1 button two more times and "TEST FUNCTION" will appear on the display.
5. Press the PROGRAM 1 button once more and "SELECT GAME" will appear. Press NEXT 2 once and Game Type (ie: GAME=MAZE" will appear. This will tell you which game EPROM is being used in your game system.
6. Again, press the PROGRAM 1 button and "SET PARAMETERS" will appear on the display. This mode holds the options settings except for the cost per game.

To set any option to a desired number, you must press the INCREASE 4 or DECREASE 5 button until the desired setting is shown on the display. To move the cursor, (it blinks on the digit it will change) you must press the ENTER 3 button, which will move the cursor to the left, or press the EXIT 6 button which will move the cursor to the right. Once an option is set as desired, press the NEXT button to go on to the next option. If all options are set to your satisfaction, press the RUN 8 button twice to return to the operation mode. See the following for the order:

- A. MAZE
- B. ATT.REPEAT = ____(Allows the attract mode to be set on any repeat interval. To cancel the attract mode, set the time to 00. The attract mode will not operate if there are credits pending on the game.)
- C. BALLS PER GAME
- D. MAX>TKT>GAME =(Maximum tickets that can be displayed per game regardless of score.)
- E. AWARD (1-5)
- F. BELL ON
- G. FREE GAME ENABLENOT USED
- H. MAX FREE GAMESNOT USED
- I. FIRST FREE GAMENOT USED
- J. FREE BALL ENABLENOT USED
- K. MAX FREE BALLSNOT USED
- L. FIRST FREE BALLNOT USED

MICROPROCESSOR

TEST PARAMETER FUNCTIONS

Press RUN 5 to go back to idle play mode. All components can be tested using the following parameters:

1. To access "TEST" functions parameter press the PROGRAM 1 button three times until TEST FUNCTIONS appears. (To exit the "TEST" function press EXIT 6 button).
2. The "TEST" buttons are in a loop, therefore, press NEXT or LAST buttons until desired test is displayed on the Liquid Crystal Display.

LED Display Test:

Press ENTER 3 button; LED will cycle through all possible numerical combinations. The test will loop cycle until the EXIT 6 button is pressed. (Press EXIT then NEXT to continue).

Sound Test:

Press ENTER 3 button. "Theme Song" will appear on the LCD. Press ENTER 3 button again and the Theme Song will play. The remaining sounds will be displayed in the following order each time the NEXT 2 button is pressed:

- | | | |
|---|-----------------------|---------------------------|
| o | Coin-Up | Press the ENTER 3 button |
| o | Start Game | after each sound display |
| o | Bonus Time | (LCD) to play that sound. |
| o | Attract Sound | |
| o | Scoring Sound (1-5) | |
| o | Spare Sound | |
| o | Non Score Sound (1-4) | |

(Press EXIT then NEXT to continue).

Memory Test:

Press ENTER 3 button; LCD will display "Testing Memory". After this test is complete, the LCD will display "Memory OK" or "Memory Bad". (Press EXIT then NEXT to continue).

MICROPROCESSOR

TEST PARAMETER FUNCTIONS

Ticket Test:

Press ENTER 3 button, then the INCREASE 4 button. The LCD will display "Tickets Good" and issue one ticket, or "Ticket Mech. Bad" if the ticket mechanism is malfunctioning for any reason. (ie: out of tickets...etc.) (Press EXIT then NEXT to continue)

Motor Test:

This will test the Ball Pick up Motor. Press the ENTER 3 button, then the INCREASE 4 button and the LCD will display "Motor On" and enable (turn on) the motor. Press the DECREASE 5 button and the LCD will display "Motor Off" and disable (turn off) the motor. (Press EXIT then NEXT to continue).

Dump Ball Test:

Not used. (Press EXIT then NEXT to continue).

Rope Lighting:

Press the ENTER 3 button, then the INCREASE 4 button to turn on the lights; the LCD will display "Ropelight On". Press the DECREASE 5 button and this will turn off the lights; LCD will then display "Ropelight Off". (Press EXIT then NEXT to continue).

Ball Sensor Test:

Press the ENTER 3 button. The LCD will display "Ball Not Seen". When the ball has passed by or through the ball sensor, the LCD will display "Ball Seen". (Press EXIT then NEXT to continue).

Coin-In Switch:

Press the ENTER 3 button. The LCD will display "Input Switch" if operational. (Press EXIT then NEXT to continue).

Start Button:

Press the ENTER 3 button. The LCD will display "Start Button Off". (Press EXIT then NEXT to continue, or RUN 5 to go back to idle play mode).

LIGHTING

All Fluorescent Lighting, located in the Upper Marquee and in the front of the Playfield utilize a ballast which contains the starter. The Rope Lighting, surrounding the Playfield directly under the glass, is 115V and is controlled from the CPU Board through the AC Power Board.

TROUBLE SHOOTING CHECKLIST

- ☐ Check 110V power source (Main Power Panel & Light Fuse)
- ☐ Check Lamps
- ☐ Check Ballast
- ☐ Check ground shield

BALLAST LIGHTS CANNOT BE TURNED OFF AND ON RAPIDLY. YOU SHOULD WAIT 45 SECONDS BETWEEN POWER ON AND POWER OFF.

MAINTENANCE

GENERAL CLEANING

Glass:	- Clean with window cleaning solutions.
Plastic Panels:	- Clean with Plex/Plastic Polish.
Exterior Metal:	- Clean with window cleaning solutions.
Exterior Cabinet:	- Clean with all purpose cleaner; then use a furniture polish if desired.

TROUBLE SHOOTING GUIDE

The following guide is to assist in making a quick diagnosis should a problem arise. Please note that we cannot over emphasize the importance of understanding the various electrical circuitry and mechanical mechanisms which make up this machine.

When trouble arises, follow these steps:

- 1) Start at the source of the trouble. Replace the suspected faulty component if (a) you are sure that the replacement part functions properly and (b) if the new component falls within the specifications outlined in this manual.
- 2) Check the voltage on the 12V Power Supply. The Power Supply is regulated and should not supply less than 7% of the 12V.
- 3) For the components driven by A/C, check the input on the A/C board. Then, the output of the switching relays for the corresponding outputs.
- 4) The switching relays are turned off and on by a 5V signal that runs to the A/C board. If the corresponding 5V signal is not being transmitted to the A/C board, check for the presence of the signal supplied by the CPU board.
- 5) For the components driven by 5V or 12V, check for the voltage supplied to the component, at the component end, then at the CPU board.
- 6) If the proper voltage is present at the source, but not at the component, check the wiring for continuity. Re-seat or Re-attach wiring that is found to be loose or broken.
- 7) Mechanical failures - check for loose or missing fasteners, wear, or misalignment.

COIN AND TICKET COUNTERS

Counters are mechanical and electrical devices placed on the machine to count the number of coins that have passed through the verifier and number of tickets paid out of the machine.

The mechanical set of counters are located inside of the LED front panel. The counters are:

COIN - IN	(TOP COUNTER)
TICKET - OUT	(BOTTOM COUNTER)

Note: Coins that are rejected by the verifier and fall into the front door reject tray are not counted on the Coin-In meters.

TROUBLE SHOOTING CHECKLIST

If the Coin-In Counter is inoperative:

- o Check the Coin-In switch
- o Check the Coin Counter
- o Check the Microprocessor Input/Output
(See Diagram - Pg. 30)

If the Ticket-Out Counter is inoperative:

- o Check the Ticket Counter
- o Check the Microprocessor Input/Output
(See Diagram - Pg. 30)
- o Check the Ticket Dispensing unit

SAFETY

This product is approved by UL (Underwriters Laboratory), and has been certified for safety using the standards of UL 22.

SECURITY

ELECTRICAL

- Verifier Coin-In systems
- Shielding of sensitive electrical parts
- Total Coin-In and Ticket-Out accountability
- Memory
- Central Grounding System

There are no bi-directional test points critical to the game functions.

MECHANICAL

- Durable cabinet design and construction
- Quality door locks
- All glass parts are security bolted from the inside
- Solid stainless steel piano hinges on front door
- All doors have door length long stops and backing
- All outer parts have close tolerance dimension
- Mechanical verifier to reject illegal tender

PARTS LIST

E2146	ASSEMBLY, CABINET
C4370	Glass, Playfield Cover
B4411	Speaker Screen
B4406	Bracket, Ball Exit
X112	Speaker, 8 ohm
X0452	Motor 2 RPM
X1122	Power Supply
C4513	Power Supply Shield, FCC
X1123	Transformer, Fluorescent Lighting
B2163	Fluorescent Lamp Hood Assembly
D2149	Deck Level Quarter Section Assembly
X0430	Spherical Ball, Chrome (3/4" Dia.)
C2157-xx	Frame Board Latch Assembly
X0427	Ball Control Knob
B2164	Rope Light Assembly
C2169	Coin Door Assembly
X1156	Ticket Dispenser
C4489	Ticket Bin (Double)
X1124	Illuminated Pushbutton, START
X1501	Owner's Manual

PLAYFIELD ASSEMBLY

D2151	Hi Tension
D2173	Awesome Rat
D2165	Awesome Loop

ARTWORK GRAPHICS

C4500	Upper Marquee, Hi Tension
C4503	Upper Marquee, Awesome Rat
C4506	Upper Marquee, Awesome Loop
C4501	Display Panel Graphics, Hi Tension
C4504	Display Panel Graphics, Awesome Rat
C4507	Display Panel Graphics, Awesome Loop
C4502	Control Panel Graphics, Hi Tension
C4505	Control Panel Graphics, Awesome Rat
C4508	Control Panel Graphics, Awesome Loop

B2161 MAIN POWER SWITCH & FUSE

B4482	Plate
X1060	Main Power Switch, ON/OFF
X1074	Fuse Holder
X1112	Fuse, 5 Amp

PARTS LIST

C2162 ASSEMBLY, DISPLAY & ELECTRONICS

D4376 Bracket, L.E.D. Display
C7001-01 PCB, Controller
C7001-02 PCB, AC Power
X1013 Counter, 6 Digit

D2142 ASSEMBLY, MOTOR PLATE WHEEL PICK UP

C9147 Assembly, Motor Wiring Harness
C4363 Plate Mounting, Ball Pick Up
C4362 Motor Plate, Ball Pick Up
C4364 Wheel Ball Pick Up Return
B4360 Ball Cam Block
B4361 Collar Ball Pick Up Wheel
X0667 Micro Switch

C2159 ASSEMBLY, TROUGH CHANNEL

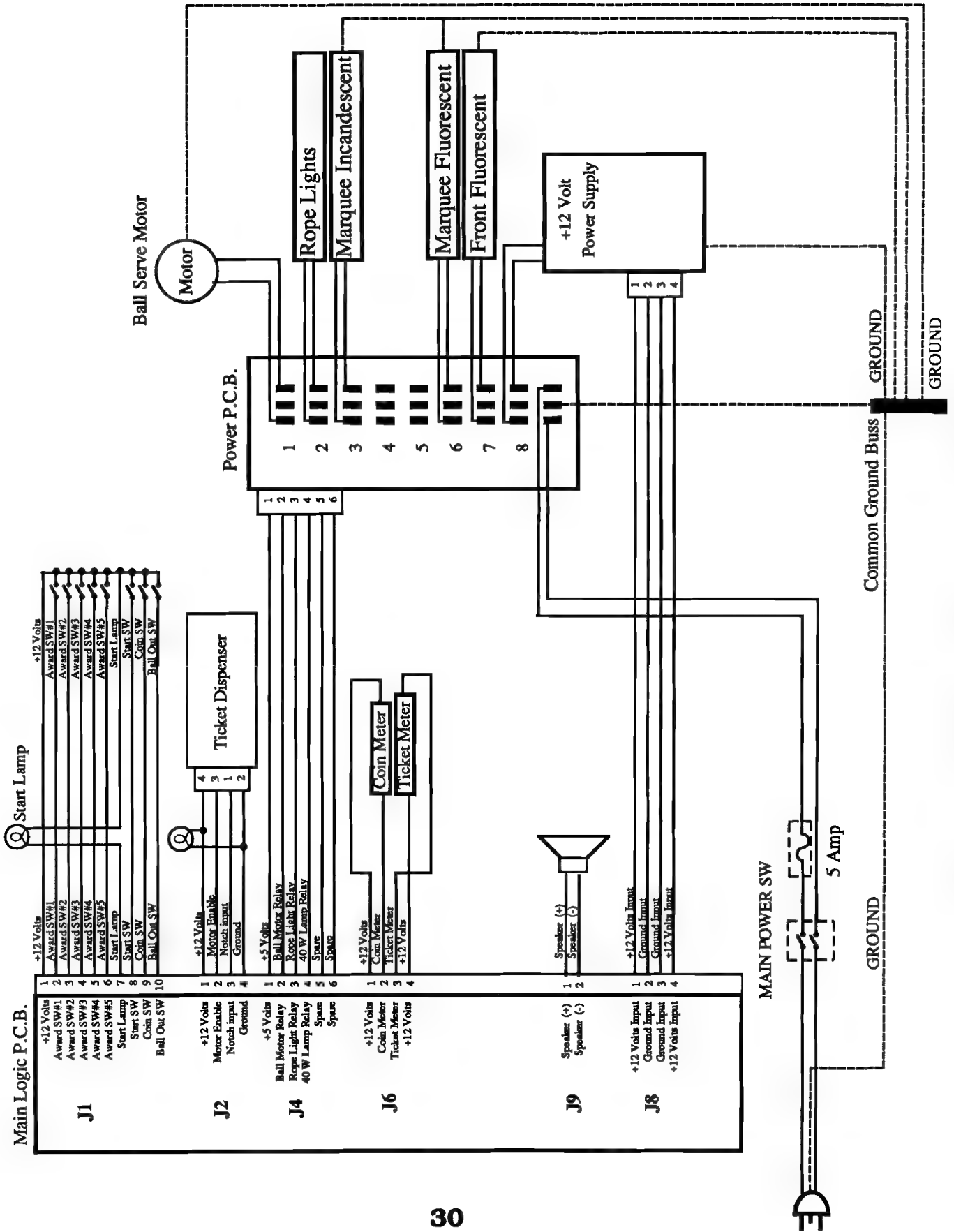
D2144 Trough Channel Assy. Weldment
B4434 Ball Bail
B4433 Shaft, Ball Bail
B4396 Bracket, Bail Return Switch
X1113 Switch

D2143 ASSEMBLY, JOYSTICK CONTROLLER LINKAGE

C2148 Control Shaft Balance Assembly
C2147 Controller Shaft Assembly
B4383 Control Shaft Linkage
C4384-01 Brace Control Right
C4384-02 Brace Control Left
C4385 Bracket, Deck Mounting
B4386 Bracket, Brace Control
B4387 Angular Stop
X0516 Precision Dowel Pin
B4491 Brace, Bracket Deck Mounting

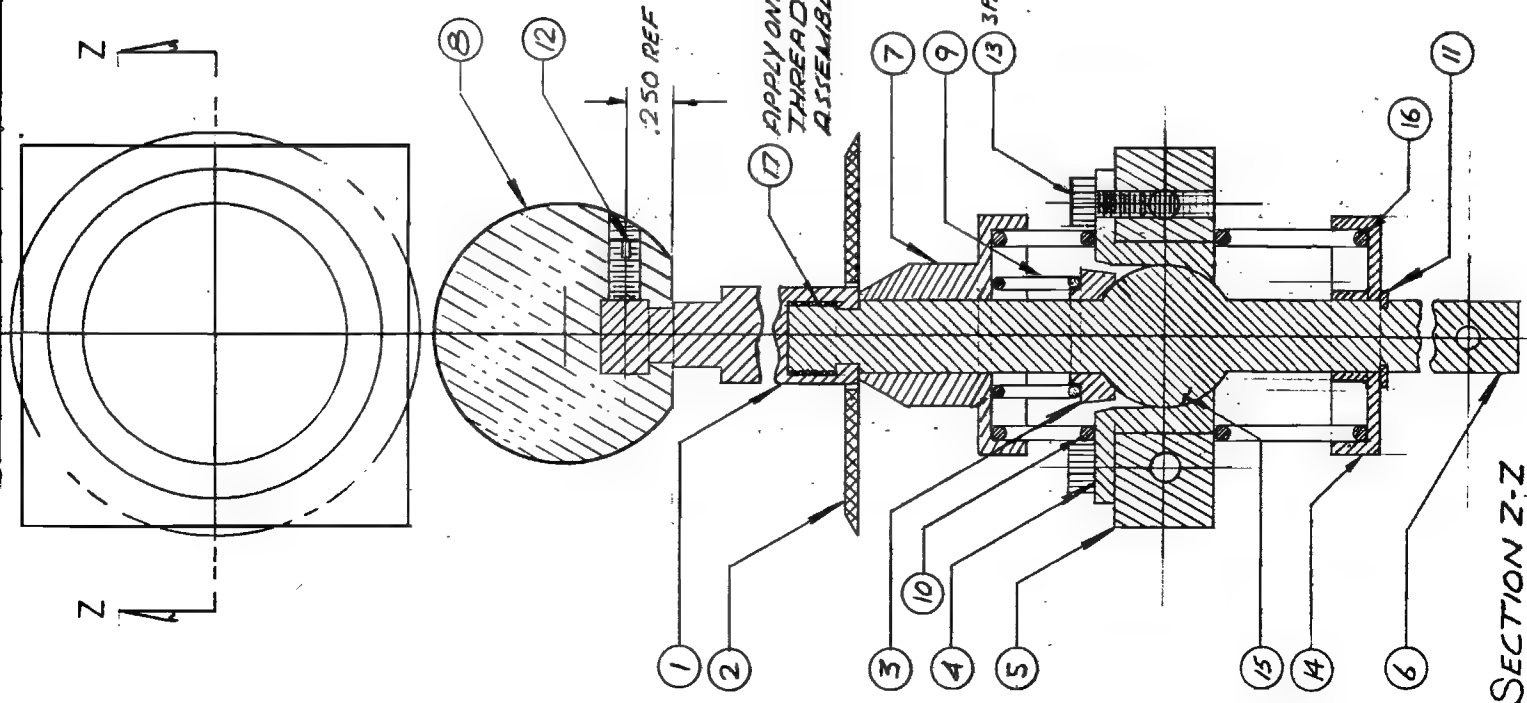
B2158 ASSEMBLY, BRACKET SWITCH BALL ROLL-OFF

B4495 Plate, Ball Off Switch
X0656 Switch
B4490 Bracket, Ball Roll-Off



WIRE DIAGRAM QUICK SILVER SYSTEM

PART NO.	LET.	EO No.	REVISIONS	DATE	BY
C2147	1			1992	118
	2		ADDED ITEM 17	1992	118



17	AS REQD	X 1317	PERMATX INDUSTRIAL GLUE
16	1	X 0474	COMPRESSION SPRING .082 DIA X .10940 L X 2" LG.
15	AS REQD	X 0700	GREASE
14	1	B4393	SPRING COMPRESSION GUIDE BUSHING, CONTROLLER
13	3	X 0002	SCREW SOCKET HD. #6-32 X 1/4" LG.
12	1	X 0008	SET SCREW CUP POINT #8-32 X 3/16" SOCKET
11	1	X 0738	RETAINER RING, 3/8" DIA SHAFT
10	1	X 0484	COMPRESSION SPRING .0600 DIA. X .10940 L X 2" LG.
9	1	X 0478	COMPRESSION SPRING .044 DIA X .6250 L X 1 3/4" LG.
8	1	B4518	BALL CONTROLLER KNOB
7	1	B4399	BUSHING, PILOT CONTROL
6	1	C4400	SHAFT CONTROLLER
5	1	C4392-01	BLOCK, CONTROLLER SHAFT
4	1	C4391-02	BUSHING, UNIVERSAL JOINT CONTROL SHAFT
3	1	C4390	BUSHING DETAINER, SPRING
2	1	B4398	DISK, CONTROLLER SHAFT EXTENSION
1	1	B4397	SHAFT CONTROLLER EXTENSION
ITEM QTY	PART NO.		DESCRIPTION & MATERIAL LIST

DESIGNED	DATE	1992
CHECKED	DATE	1992
ENG'G.	DATE	1992
EX. DWG. NO.	REV.	
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MATERIAL HEAT TREAT FINISH		
TITLE CONTROLLER SHAFT ASSY SIZE C CODE IDENT. C2147 SCALE 2:1 TOT NEXT SH		

Quick Silver Development Co.

CONTROLLER SHAFT ASSY

SIZE C

CODE IDENT. C2147

SCALE 2:1

TOT NEXT SH

DESIGNED

DATE

MODEL

EDGE 122143

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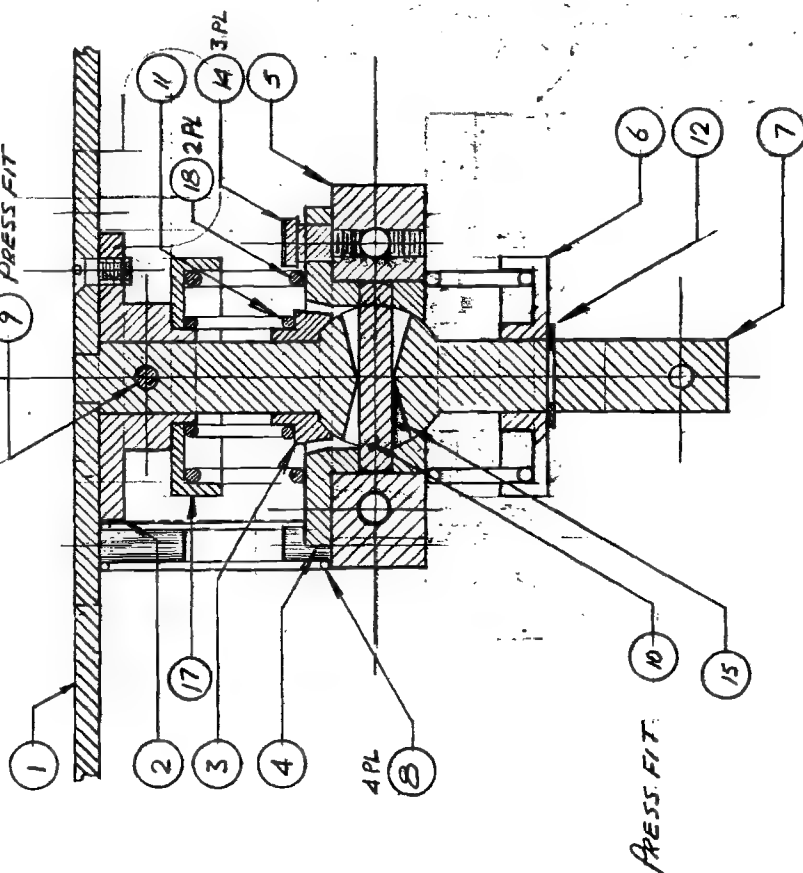
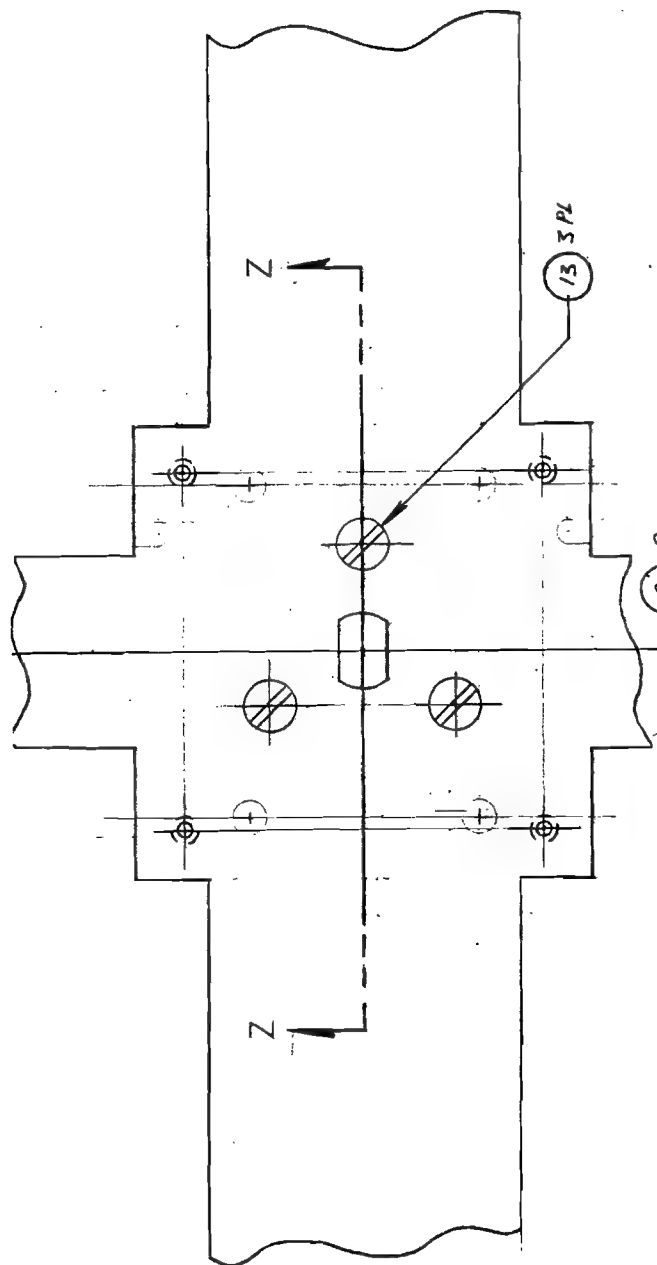
MATERIAL

HEAT TREAT

FINISH

SECTION Z-Z

WANT NO.	REV.	EQ NO.	DATE	BY
C2148	1		1992	ELM



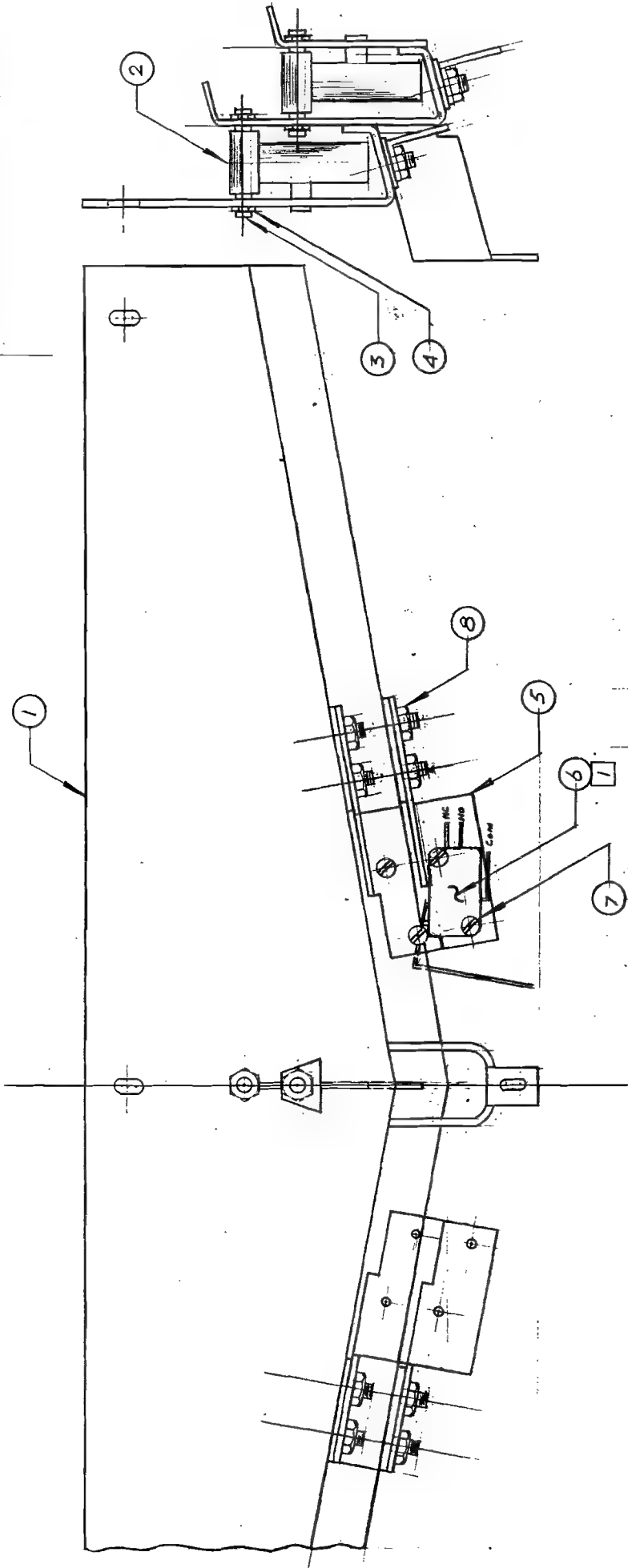
ITEM	QTY	PART NO.	DESCRIPTION & MATERIAL LIST
20			
19			
18	2	X 0474	COMPRESSION SPRING, .082 DIA WIRE X 1.094 O.D. X 2.16
17	1	B4432	SPRING COMPRESSION GUIDE BUSHING, CONTROL
16			
15	AS REQD	X 0700	GREASE
14	31	X 0076	SHOULDER STD SCREW #6-32 X .875 DIA - RNC #6909
13	3	X 0019	SCREW FLAT HD, #6-32 X 9/16 LG
12	1	X 0738	RETAINER RING, 3/8" DIA SHAFT
11	1	X 0478	COMPRESSION SPRING, .044 DIA X .625 O.D. X 1 7/8 LG
10	1	X 0545	DOWEL PIN, 3/16" DIA X 1" LG
9	1	X 0506	ROLL PIN, 1/8" DIA X 3/4 LG
8	4	X 0480	COMPRESSION SPRING, .047 DIA WIRE X .330 O.D. X 1 1/4 LG
7	1	C4394	SHAFT, BALANCE CONTROL
6	1	B4393	SPRING COMPRESSION GUIDE BUSHING BALANCE
5	1	C4392-02	BLACK CONTROLLER BALANCE SHAFT
4	1	C4391-01	BUSHING, UNIVERSAL JOINT CONTROL SHAFT
3	1	C4390	BUSHING, RETAINER, SPRING
2	1	B4389	FLANGE, ALIGNMENT, BALANCE CONTROL SHAFT
1	1	C4499	WHIPPER PLATE, BALANCE TABLE
ITEM	QTY	PART NO.	DESCRIPTION & MATERIAL LIST

MODEL	ASSEMBLY	DATE	DESIGNED	DATE
EDGE	D2146	1990	1990	1990
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UNLESS OTHERWISE NOTED, DIMENSIONS ARE IN INCHES				
XX = .01 ANGLES =				
MATERIAL				
HEAT TREAT				
FINISH				
TITLE				
CONTROL SHAFT				
BALANCE ASSY				
SIZE				
C				
CODE IDENT				
C 2148				
PART NO.				
C 2148				
SCALE				
2:1				
TOT				
NEXT				
SH				

PART NO.	LET.	EO NO.	REVISIONS	DATE	BY
C2159	1			1992	EUR

NOTE:
1 TYPICAL SWITCH MOUNTING,
ALIGN ACTUATOR ARM WITH
CENTER OF SLOT, 4 PLACES.

1 MACHINE & CABINET



BACK VIEW OF MACHINE

8	8	X0300	HEX NUT #8-32 W/LOCKWASHER
7	8	X0056	SCREW BINDER HD. #4-40 x 1/2" LG.
6	4	X1113	SWITCH CHERRY #E23-8SHX, REGISTER
5	4	B4396	BRACKET, BAIL REGISTER SWITCH
4	4	X0742	E-RING X 5133-18 FOR 3/16" DIA SHAFT
3	2	B4433	SHAFT, BALL BAIL
2	2	B4434-7A8	BAIL, BALL
1	1	D2144	TROUGH CHANNEL WELOMENT ASSY
ITEM QTY	PART NO	DESCRIPTION & MATERIAL LIST	

FIRST USED ON		DESIGNED	DATE
MODEL	ASSEMBLY		
EDGE	E2146		
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X1 - .01		X2 - .005	
X3 - .002		X4 - .001	
X5 - .0005		X6 - .0002	
X7 - .0001		X8 - .00005	
X9 - .00002		X10 - .00001	
X11 - .000005		X12 - .000002	
X13 - .000001		X14 - .0000005	
X15 - .0000002		X16 - .0000001	
X17 - .00000005		X18 - .00000002	
X19 - .00000001		X20 - .000000005	
X21 - .000000002		X22 - .000000001	
X23 - .0000000005		X24 - .0000000002	
X25 - .0000000001		X26 - .00000000005	
X27 - .00000000002		X28 - .00000000001	
X29 - .000000000005		X30 - .000000000002	
X31 - .000000000001		X32 - .0000000000005	
X33 - .0000000000002		X34 - .0000000000001	
X35 - .00000000000005		X36 - .00000000000002	
X37 - .00000000000001		X38 - .000000000000005	
X39 - .000000000000002		X40 - .000000000000001	
X41 - .0000000000000005		X42 - .0000000000000002	
X43 - .0000000000000001		X44 - .00000000000000005	
X45 - .00000000000000002		X46 - .00000000000000001	
X47 - .000000000000000005		X48 - .000000000000000002	
X49 - .000000000000000001		X50 - .0000000000000000005	
X51 - .0000000000000000002		X52 - .0000000000000000001	
X53 - .00000000000000000005		X54 - .00000000000000000002	
X55 - .00000000000000000001		X56 - .000000000000000000005	
X57 - .000000000000000000002		X58 - .000000000000000000001	
X59 - .0000000000000000000005		X60 - .0000000000000000000002	
X61 - .0000000000000000000001		X62 - .00000000000000000000005	
X63 - .00000000000000000000002		X64 - .00000000000000000000001	
X65 - .000000000000000000000005		X66 - .000000000000000000000002	
X67 - .000000000000000000000001		X68 - .0000000000000000000000005	
X69 - .0000000000000000000000002		X70 - .0000000000000000000000001	
X71 - .00000000000000000000000005		X72 - .00000000000000000000000002	
X73 - .00000000000000000000000001		X74 - .000000000000000000000000005	
X75 - .000000000000000000000000002		X76 - .000000000000000000000000001	
X77 - .0000000000000000000000000005		X78 - .0000000000000000000000000002	
X79 - .0000000000000000000000000001		X80 - .00000000000000000000000000005	
X81 - .00000000000000000000000000002		X82 - .00000000000000000000000000001	
X83 - .000000000000000000000000000005		X84 - .000000000000000000000000000002	
X85 - .000000000000000000000000000001		X86 - .0000000000000000000000000000005	
X87 - .0000000000000000000000000000002		X88 - .0000000000000000000000000000001	
X89 - .00000000000000000000000000000005		X90 - .00000000000000000000000000000002	
X91 - .00000000000000000000000000000001		X92 - .000000000000000000000000000000005	
X93 - .000000000000000000000000000000002		X94 - .000000000000000000000000000000001	
X95 - .0000000000000000000000000000000005		X96 - .0000000000000000000000000000000002	
X97 - .0000000000000000000000000000000001		X98 - .00000000000000000000000000000000005	
X99 - .00000000000000000000000000000000002		X100 - .00000000000000000000000000000000001	

Quick Silver Development Co.

TITLE
TROUGH CHANNEL ASSY

SIZE
C

CODE IDENT
C2159

PART NO

SCALE
1:1

TOT
1

NEXT
2

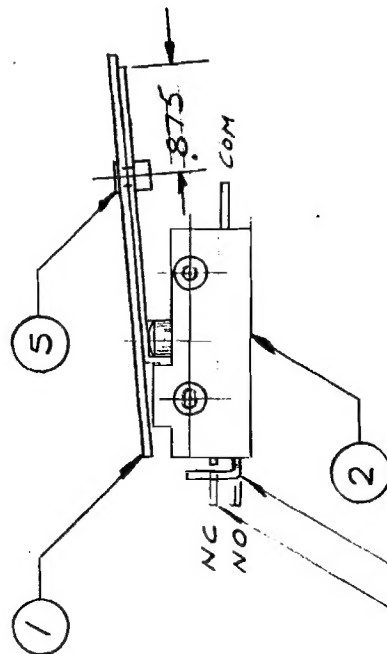
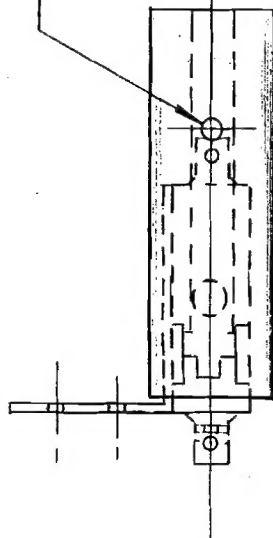
SH

LET.	EO No.	REVISIONS	DATE	BY
1			1992	EJM
2		TRIM LUGS, FORM OTHER LIP	1992	EJM
3		BTS DIM WAS 1.000	1992	EJM

PART NO.
B2158

#30 DRILL (.1285)
DRILL THRU SWITCH BLADE

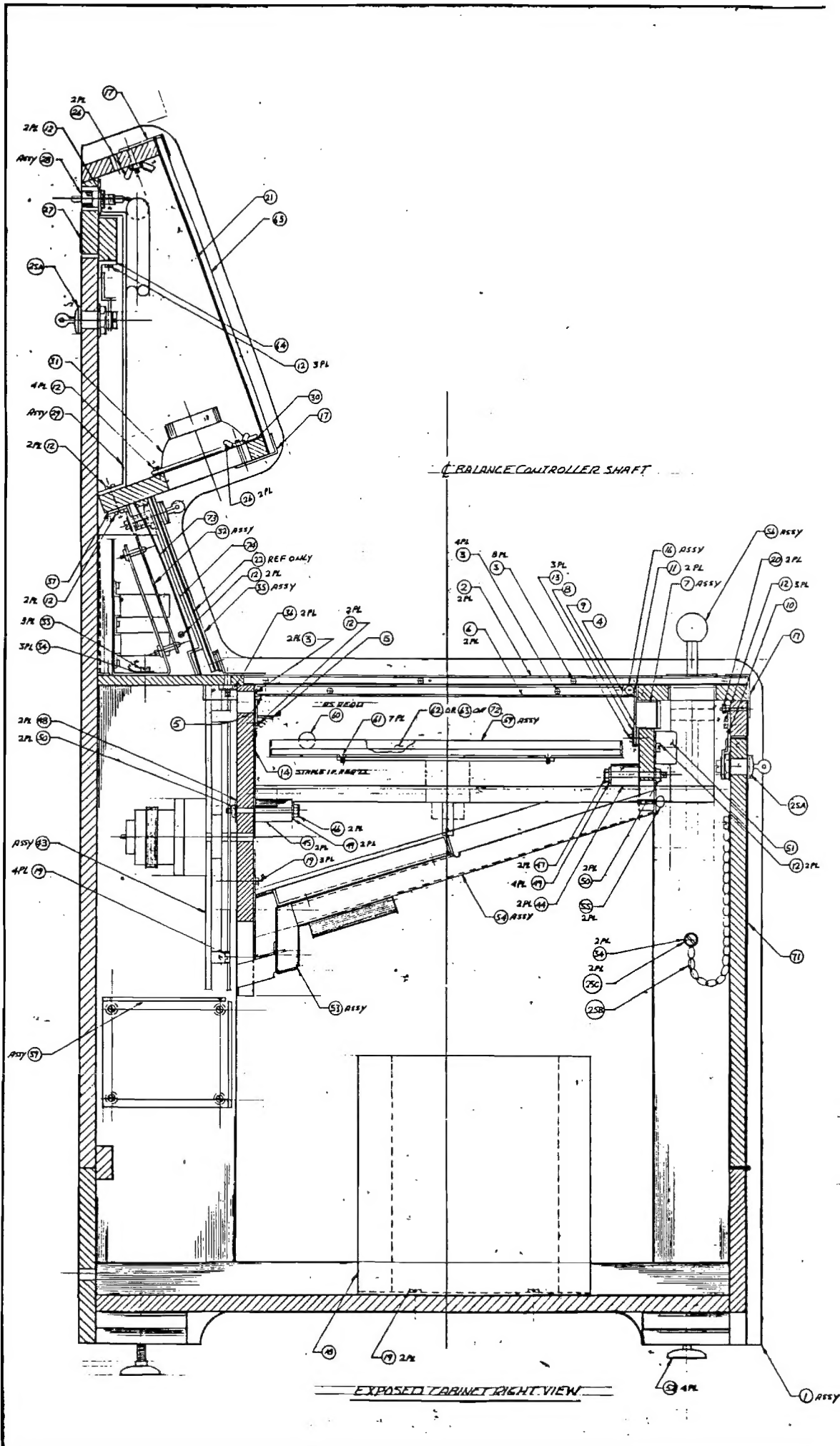
Ø OF SWITCH BLADE



NO. - CAUTION FORM LUG
LIP 90° AS SHOWN
N.C. - TRIM LUG OFF NOT USED

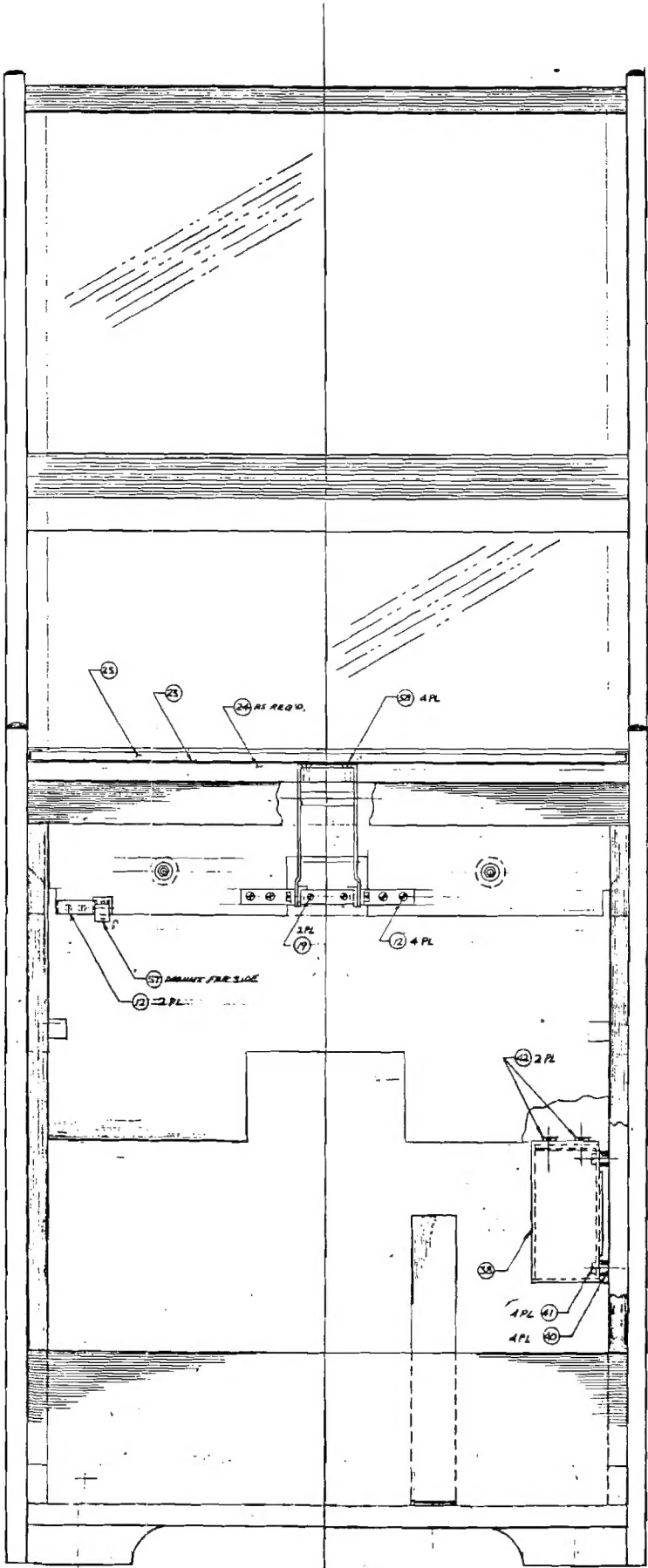
5	1	X0507	POP RIVET 1/8" DIA, .250 - .312 GRIP
4	2	X0042	SCREW B.H. #6-32 x 7/8" LG.
3	1	B4490	BRACKET, SWITCH BALL ROLL OFF
2	1	X0656	SWITCH E23-50H, BALL ROLL OFF
1	1	B4495	PLATE, BALL ROLL OFF SWITCH
ITEM	QTY	PART NO.	DESCRIPTION & MATERIAL LIST

UNLESS OTHERWISE NOTED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE:		FIRST USED ON		DESIGNED		DATE	
XX - 01 XXX - 005		MODEL		DRAWN		CHECKED	
ANGLES =		ASSEMBLY		ENGRG.		EX. DWG NO.	
MATERIAL		EDGE E2146		REV.		SCALE 1:1	
HEAT TREAT		This document is the property of Quick Silver Development Co. and may not be used, reproduced, published or distributed to others without written authorization by the Company. If loaned the document must be returned to the Company and not be used directly or indirectly in any way detrimental to the Company. It is to be used only for reproducing items on order for the Company.		TITLE		PART NO.	
FINISH		Quick Silver Development Co.		BRACKET SWITCH BALL ROLL OFF ASSY		B2158	
						TOT.	
						NEXT	
						SH.	



REV	DATE	BY	CHKD	APP'D
1	7/75			

NOTICE: ROUTING OF HARNESS & CABLES NOT SHOWN



Machine & Cabinet

ITEM QTY	PART NO	DESCRIPTION & MATERIAL LIST
74	1	D4515 F.C.C. SHIELD, P.C.B.
73	1	B4516 SHIELD A.I.C. P.C.B.
72	1	D2151 GAME BOARD ASSY (MAZE)
71	1	C2167 CABINET DOOR COIN MECHANISM ASSY
70	1	X1501 MAINTENANCE MANUAL
69	1	B9157 SPEAKER CABLE
68	1	B9156 POWER SUPPLY CABLE
67	1	B9155 POWER BOARD HARNESS
66	1	C9154 MAIN PROCESSOR HARNESS
65	1	C4372 GLASS GRAPHIC DISPLAY
64	1	B4375 BRACKET, REAR PANEL LOCK
63	1	C2166 GAME BOARD ASSY (SCALLOPS)
62	1	C2165 GAME BOARD ASSY (LOOP)
61	1	X0092 SCREW FLAT HD. #6-32 x 1/2 LG. STL PLATED
60	1	X0430 SPHERE BALL 1/4 DIA STL PLATED
59	1	C2157 FRAME BOARD TATCH ASSY
58	4	X0091 SCREW FLAT HD. PHILLIPS #4 x 1/2 LG. STL PLATED
57	1	B2158 BRACKET SWITCH BALL BALL OFF ASSY
56	1	C2143 BRACKET CONTROLLER LINKAGE BRACE ASSY
55	2	X0090 THUMB SCREW #10-32 x 1/2 LG. HD. WOOD
54	1	C2149 DECK LEVEL QUARTER SECTION ASSY
53	1	C2159 TROUGH CHANNEL ASSY
52	1	X0600 FOOT GLIDE
51	1	X1123 TRANSFORMER, FLUORESCENT LIGHTING
50	4	X0321 HEX NUT 1/4 x 20
49	6	X0087 WASHER 5/8" O.D. x 1/4" I.D. x 1/8" THK.
48	2	X0088 WASHER 1" O.D. x 1/4" I.D. x 1/8" THK.
47	2	X0087 BOLT 7/8" HEX #4 x 20 x 1 1/2 LG.
46	2	X0086 BOLT 7/8" HEX #4 x 20 x 1 1/2 LG.
45	2	X0398 MOLDED BUMPER 1 1/2" O.D. x 1 1/2" LG. x 1/2" I.D.
44	2	X0397 MOLDED BUMPER 1 1/2" O.D. x 1 1/2" LG. x 1/2" I.D.
43	1	C2142 MOTOR PLATE WHEEL PICK UP ASSY
42	2	X1311 SCREW BINDING NO. #8-32 x 1 1/2 LG. STL PLATED
41	4	X0085 SCREW BINDING NO. #8-32 x 1 1/2 LG. STL PLATED
40	4	X1310 SPACER 1/2" O.D. x 3/4 LG. STL #8 - NYLON
39	1	X1122 POWER SUPPLY SOURCE ASSY
38	1	B4494 F.C.C. SHIELD POWER SOURCE
37	1	B4481 BRACKET, PANEL DOOR L.E.D. LOCK
36	2	X0312 HEX NUT #10-32
35	1	C2156 PANEL, L.E.D. GRAPHIC ASSY
34	3	X0354 WASHER #10
33	3	X0070 SCREW BINDING NO. #10-32 x 1 1/2 LG. STL PLATED
32	1	C2142 BRACKET, L.E.D. DISPLAY ELECTRONIC ASSY
31	1	X1121 SPEAKER
30	1	B4411 SPEAKER, SPEAKER
29	1	C2160 BRACKET TRANSFORMER LIGHTING ASSY
28	1	B2161 PLATE, POWER SWITCH & FUSE ASSY
27	1	B4477 GRAPHIC SERIAL NO. PLATE
26	4	X0084 WING NUT #8-32 WING SCREW #8 STL PLATED
25C	2	X0083 SCREW ROUND WASHING NO. #8-32 x 1 1/2 LG. STL PLATED
25B	1	X0608 CHAIN LINK
25A	2	X0606 LOCK & KEY KIT
25	1	C4370 GLASS, PLAYER DISPLAY
24	1	X0721 ADHESIVE TAPE 1/2" WIDE
23	1	C4305 GRAPHIC INSTRUCTION PAPERMAN
22	1	C4304 GRAPHIC L.E.D. PAPERMAN
21	1	C4303 GRAPHIC DISPLAY PAPERMAN
20	2	X0082 ROUND THUMB NUT #10-32 x 1 1/2 LG. ALUM. (RAF)
19	1	X0015 SCREW BINDING NO. #10-32 x 1 1/2 LG. STL PLATED
18	1	C4489 TICKET BAR, DOUBLE
17	3	B4376 BRACKET, GLASS TRIM
16	3	B2164 ROPE LIGHTING ASSY
15	1	B4406 BRACKET, BALL EXIT
14	1	C4475 COIN BOARD ART, CABINET BOARD
13	3	X0042 SCREW BINDING NO. #6-32 x 7/16 LG. STL PLATED
12	24	X0080 WOOD SCREW FLAT HD. PHILLIPS #4 x 1/2 LG. STL PLATED
11	2	X0077 WOOD SCREW FLAT HD. PHILLIPS #4 x 1/2 LG. STL PLATED
10	1	B4377 STRIP, FRONT DOOR STOP
9	1	B4380 FIXTURE, FLUORESCENT LAMP
8	1	B4493 HALDER STRIP, FIXTURE FLUORESCENT
7	1	B2163 FLUORESCENT LAMP HOOD, PLAYER ASSY
6	2	C4488-03 CHANNEL, SLOTTED, ROPE LIGHTING
5	1	C4488-02 CHANNEL, REAR, ROPE LIGHTING
4	1	C4488-01 CHANNEL, FRONT, ROPE LIGHTING
3	1	X0078 WOOD SCREW FLAT HD. PHILLIPS #4 x 1/2 LG. STL PLATED
2	2	B4377 STRIP, FRONT DOOR STOP
1	1	E2146 CABINET COMPONENTS MECHANICAL ASSY

ITEM QTY PART NO DESCRIPTION & MATERIAL LIST

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES ARE .005" .010" .015" .020" .030" .040" .050" .060" .070" .080" .090" .100" .125" .150" .175" .200" .250" .300" .375" .500" .625" .750" .875" 1.000" 1.250" 1.500" 1.750" 2.000" 2.500" 3.000" 3.500" 4.000" 4.500" 5.000" 5.500" 6.000" 6.500" 7.000" 7.500" 8.000" 8.500" 9.000" 9.500" 10.000"

DATE: 7/75 BY: [Signature] CHKD: [Signature] APP'D: [Signature]

SCALE: 1/2" = 1"

Quick Silver Development Co.

TITLE: CABINET COMPONENTS MECHANICAL ASSY

SIZE: 11" x 17" PART NO: E2146

SCALE: 1/2" = 1"